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CONTENTS.

EDITORIAL COMMENT.....839, 873, 874
BOOK REVIEWS.....842
AMERICAN NEWS AND NOTES..... 843
FOREIGN NEWS AND NOTES..... 845
OBITUARIES.....845
THE PUBLIC SERVICE.....846

SOCIETY REPORTS.

Association of American Physicians. (Con-
cluded).....847

CLINICAL NOTES AND CORRESPONDENCE.

A Clinical Method of Determining the Vasomotor Factor in Blood-pressure.
By ALBERT ABRAMS, A.M., M.D., of San Francisco, Cal.....850

ORIGINAL ARTICLES.

Empyema. By DE FOREST WILLARD, M.D., of Philadelphia. (*Illustrated*).....851
Experimental Pancreatitis Considered in its Relation to the Acute Forms of Pancreatitis in Man. By RICHARD M. PEARCE, M.D., of Albany, N. Y..... 853
Acute Anterior Poliomyelitis in Adults, with Report of a Case in Which There Was Also a Peripheral Facial Palsy and Paradoxical Pupils Complicated with Hippus. By ALFRED GORDON, M.D., of Philadelphia. (*Illustrated*).....858
Neuritis as a Complication of Some Portion of the Child-bearing Process. By WILLIAM R. NICHOLSON, Ph.B., M.D., of Philadelphia.....860
Clinical Report of a Case of Lithogenous Icterus. By BYRON ROBINSON, B.S., M.D., of Chicago. (*Illustrated*).....863

Posterior Gastroenterostomy, with Enterointerostomy: A Study of Conditions Found at Autopsy. By W. L. WALLACE, M.D., of Syracuse, N. Y. (*Illustrated*).....864

SPECIAL ARTICLES.

Observations on the Duty of the Physician to His Patient Through the Surgeon. By HENRY SEWALL, Ph.D., M.D., of Denver, Colo..... 866
The Santa Cruz Mountains of Jamaica, West Indies, for the Tuberculous. By MR. LOGAN RUSSELL, of Kingston, Jamaica, and LESLIE ALEXANDER, Esq., of Malvern.....868

THE WORLD'S LATEST LITERATURE.869

TABLE OF CONTENTS CONTINUED ON PAGE 8.

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For Practitioners

A Manual of General Pathology

By SIDNEY MARTIN, M.D.

Professor of Pathology at University College; Physician to University College Hospital, London.

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cavity eosinophile leukocytes disappear almost completely from the peripheral circulation within a few hours. After the inoculation of an organism producing an infection from which the animal is capable of recovering they disappear from the peripheral circulation so that their proportion may fall from 5% or 10% to less than 1%. The number then gradually increases until in four or five days it exceeds the normal proportion, and then slowly falls back to normal. When the number of eosinophiles is at the lowest point in the peripheral circulation they are found in great numbers in the vessels of the inflamed mesentery and omentum near the site of inoculation. Unlike the polynuclear leukocytes they rarely if ever act as phagocytes. In the region of the bacterial poison they undergo degenerative changes of which nuclear fragmentation is the most characteristic. Under the influence of severe bacterial infection eosinophile myelocytes together with other elements, usually regarded as characteristic of the bone marrow, accumulate in the spleen and may be found in the circulating blood. The occurrence of this phenomena within two to four hours demonstrates that the elements are derived from the bone marrow and are not formed in the spleen. Bacteria exert a chemotactic influence upon cells with eosinophile granulation, attracting them from the circulating blood to the site of inoculation and from the bone marrow into the blood. Eosinophile leukocytes, like the finely granular polynuclears accumulate in the neighborhood of bacteria injected into the body and though they rarely act as phagocytes, have a part in the series of changes which follow bacterial invasion.

A New Case of Chloroma with Leukemia, with a Study of the Cases Reported since 1893.—GEO. DOCK and A. S. WARTHIN. DOCK presented these conclusions: 1. Chloroma is a tumor-like hyperplasia of the parent cells of the leukocytes, primary in the red marrow, the periosteum being involved only secondarily. The possibility of a primary chloroma in any part of the body in which white cells are formed must be considered. 2. As a result of this leukoblastic hyperplasia, atypical leukocytes may appear in the circulating blood in varying number. Chloroma is therefore to be classed with the leukemias. 3. The white cells resulting from the atypical proliferation may in different cases attain different stages of differentiation. In some cases they may be of the large lymphocyte type, in others of the type of neutrophile or eosinophile myelocytes. 4. It is evident, therefore, as in the case of other leukemias, that the blood picture in chloroma may be very varied, and if this be used for a basis of classification it is possible to designate different varieties of chloroma. 5. The essential difference between chloroma and other forms of leukemia is the more marked neoplastic character of the former and the formation of the green infiltrations and metastases. 6. Chloroma is probably to be regarded as a more malignant form of leukemia. This malignancy of chloroma depends chiefly upon the replacement of the red marrow and erythroblastic elements by the proliferating white cells and the consequent diminished red-cell formation. 7. The cause of the green color remains unknown.

Types of Splenic Anemia or Splenomegaly.—ALFRED STENGEL reported a series of cases that had been carefully studied clinically and microscopically. The first case was that of a child 3 years old, that had, at the age of 2, shown an increase in the size of the abdomen and marked pallor. Physical examination showed an enlarged spleen and the blood-examination gave 30% of hemoglobin, 2,900,000 red cells and 7,600 white cells. A general dropsical condition appeared and at the same time a leukocytosis of about 20,000. Autopsy revealed a general splenic enlargement with infarcts of the spleen and kidneys, a bronchopneumonia, vegetative endocarditis of the mitral valve and miliary tuberculosis of the lungs, liver and spleen. The lymphatic glands showed a marked hyperplasia and necrosis of the endothelial cells. The second case was in an adult showing splenic anemia with cirrhosis of the liver. There was a generally stunted growth, club fingers and pigment changes in the skin. Autopsy examination disclosed hyperplastic changes in the spleen, cirrhosis of the liver and fibroid changes in the lungs and other organs. The third case was in a young woman of 25, whose condition was diagnosed as primitive splenomegaly. The spleen was removed by operation and the patient recovered. Microscopic sections of the spleen showed a very marked hyperplasia with extensive fibroid growth.

Discussion.—OSLER thought that these cases illustrate the extreme complexity of the subject and said that while the third case belonged to a very definite group it was doubtful if they could often be recognized clinically. He had seen such a case operated upon by Mikulicz some years ago and the patient was afterward exhibited before the German Surgical Congress. Since Osler's last report on this subject he has seen 9 cases of great enlargement of the spleen associated with anemia. One was a case of so-called primitive splenomegaly; 4 were cases of chronic splenic enlargement with pigmentation of the skin; 2 belonged to that group which resembles Hanneaux disease, and 2 were cases of splenic anemia subsequently becoming pernicious anemia. SIPPY related a case which he had seen since the report he published in 1899. The patient was a woman with a movable spleen that came down below the umbilicus and readily moved about in the abdominal cavity. She presented the picture of a gradually developing anemia. The spleen was removed by operation and she made a complete and satisfactory

recovery. He raised the question whether the splenic anemia in these cases might be due to poisonous substances secreted by the enlarged spleen or whether it be due to malnutrition. CABOT replied to this point that there is no evidence, clinical or experimental, that splenic anemia is ever due to malnutrition.

The Agglutination and Filtration of Trypanosomes.—The main features presented in this work by F. G. NOVY and his associates, MCNEAL and HARE, may be briefly summed up as follows: 1. The trypanosome present in the Philippine surra can be cultivated artificially. 2. Attenuated cultures of this organism can be obtained, as in the case of *Trypanosoma brucei*. 3. This trypanosome is differentiated by its cultural characteristics from *Trypanosoma brucei* and *Trypanosoma lewisi*. 4. The Philippine surra is therefore a distinct disease, different from nagana, and this observation confirms the work of Laveran and Mesnil on the nonidentity of nagana and the surra of Mauritius. 5. The morphologic differences between the Mauritian and Philippine trypanosomes suggests the probability that these organisms are distinct species, and hence that the term surra covers a group of closely allied diseases.

Zonal Necrosis of the Liver.—E. L. OPIE reviewed the vascular and other anatomic features peculiar to the liver structure to show the varying facility with which necrosis occurs in different zones of that organ. He referred at length to the experimental work which has heretofore been done on this subject, and then considered in sections the conditions associated with zonal necrosis of the liver in various diseases, dividing the subject into central necrosis, peripheral necrosis, and midzonal necrosis, and followed that with a special consideration of the relation of midzonal necrosis to acute yellow atrophy of the liver. He related the clinical and anatomic histories of cases in each class. The paper is an extremely interesting one, not susceptible of satisfactory abstraction, and can be profitably read in full by those who are interested in the subject.

Experimental Arthritis and Endocarditis Produced by a Streptococcus Isolated from the Blood of a Case of Rheumatism, Endocarditis, and Chorea.—M. J. LEWIS and W. P. LONGCOPE. In a fatal case of rheumatism, endocarditis, and chorea a streptococcus was isolated from the blood before death. This organism did not differ materially from the common varieties of *Streptococcus pyogenes* in cultural properties, but produced very characteristic lesions in rabbits when injected intravenously. Such inoculations were always followed after a few days' incubation period by a multiple arthritis, which usually started in the ankles. In one rabbit extensive vegetations were found on the mitral valve, while typical infarctions were seen in the spleen and kidneys. This organism was believed to be the same as that described by Wassermann, Meyer, Poynton and Paine, and Ainley Walker, and considered by them to be the specific cause of rheumatic fever.

Serum Treatment for Hay-fever.—*Harper's Weekly* states that in a list of 285 patients to which serum treatment had been given under different circumstances and in different countries, recently compiled in Germany, 60% are reported as completely relieved, 29% partly cured, and 11% failures. "Hay-fever," says the *Weekly*, "is supposed to result from the pollen of various plants, and the serum was prepared by inoculating horses with this pollen. It may be used in liquid or powdered form, and is applied locally, no attempts having been made as yet at subcutaneous injection. There is strong evidence to believe in the efficacy of the serum, and in the majority of cases it was found possible to relieve the patient and to shorten materially the seizure. Although it does not, however, prevent a recurrence of the attack, it has great value as a prophylactic."

Ceylon's Battle with the Plague.—A correspondent to an exchange states that the last governor of Ceylon, fearful that the bubonic plague might gain a footing in this island as in the adjacent mainland, left no means of prevention and no precaution untried. The railway stations are posted over with regulations and instructions in case of plague patients being apprehended on a train, and no one with a rash, a high temperature, a glassy eye, or a swelling near the glands of the throat need present himself at a ticket office and expect to go on. Despite the hordes of coolies traveling back and forth between southern India and the Ceylon tea estates, the plague has never been established on the island. There is strict quarantine against Madras, and tourists coming down by Tanjore and the temple towns of southern India are obliged to keep themselves under inspection and record for 10 days. A permit is given them and they are free to travel in Ceylon if they report themselves daily to the government medical officer, who stamps the paper day by day. This mysterious black death is almost as far from being understood as in the middle ages. A Japanese bacteriologist discovered the bacillus 10 years ago, and since then all means of battling with it have been experimental. It rages in Madras, Calcutta, and Bombay, in all of which ports the most elaborate sanitary regulations have been in force for years; and it only exists at times, instances in which it has been directly brought from other places, in Colombo and Singapore. If the high temperature of Colombo is the reason for its not being domiciled there permanently the cooler hill country should invite the black plague of Yunnan to whatever temperature it prefers.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

A CLINICAL METHOD OF DETERMINING THE VASOMOTOR FACTOR IN BLOOD-PRESSURE.

BY

ALBERT ABRAMS, A.M., M.D.,
of San Francisco, Cal.

Dr. L. F. Bishop, in a contribution on "The Importance of Considering the Element of Vasomotor Instability in Estimating the Significance of Irregularity of Cardiac Rhythm," published in *American Medicine*, April 23, 1904, directs attention to a significant clinical paradox, viz., the discrepancy often existing between the heart-sounds and the pulse—in other words, the vigor of the one cannot be gauged by the strength of the other. My own observations tally with those of Bishop. I have frequently noted among arteriosclerotics and others, that a high blood-pressure is often coupled with the local evidence of cardiac incompensation. When the heart tones are weak, increased blood-pressure can never indicate a vigorous heart action, and in estimating the vigor of the latter, blood-pressure is of subsidiary value only. When high blood-pressure coexists with cardiac enfeeblement, a vasomotor factor is concerned in the maintenance of the former, this increase in the peripheral resistance of the bloodvessels acting as a prop to the enfeebled heart. In other words, the arterial system serving the objects of compensation acts as a subsidiary heart, which in turn facilitates the circulation of blood. In this way, as I view it, the nervous system through the vasomotor nerves, may compensate an impaired myocardium. I have accumulated sufficient data to warrant recommending the following method for determining the vasomotor factor in the clinical measurement of blood-pressure. In my observations, the Riva-Rocci instrument was employed. After determining blood-pressure according to the conventional method, the patient is instructed to inhale amyl nitrite from a bottle, after which procedure the blood-pressure is again estimated, and the difference noted. The arm piece of the instrument need not be removed until the investigations are completed. The patient must be instructed not to practise forced breathing while inhaling amyl nitrite, as observation has taught me that this physiologic act alone will reduce blood-pressure, and thus negative the clinical findings. Sufficient amyl nitrite must be inhaled to induce its physiologic action, viz., slight duskiness of the face, fulness in the head and relaxation of the bloodvessels. The average effect of inhalation of the drug in the normal subject is to cause a slight increase of blood-pressure, varying from 2 mm. to 20 mm. The primary effect is to depress slightly the blood-pressure, but it rises at once. I am inclined to conclude that in the average healthy individual, inhalation of amyl nitrite relaxes the arterial walls by eliminating the vasomotor influence, thus bringing into play the veritable cardiac pressure. My observations, extending over a period of one year, permit me to formulate the following conclusions:

1. Blood-pressure is an expression of action of two chief factors, ventricular force and vasoconstriction.
2. Inhalation of amyl nitrite dissipates the vasoconstrictor factor and brings into play the ventricular force which is the real factor to be encouraged in a failing heart.
3. The vasoconstrictor factor may and does compensate myocardial inadequacy, for it is essential in most cardio-arterial diseases for the blood-pressure to be maintained to afford better nutrition for the heart and to augment arterial elasticity as a means of establishing the blood circulation.
4. The recognition of the myocardial and vasomotor factors in blood-pressure guides us correctly in the administration of cardiotonics.
5. In the individual endowed with cardiac health, the removal of the vasomotor factor by inhalation of amyl nitrite causes an increase in blood-pressure, whereas the converse condition causes the latter to fall and the degree of reduction is proportionate to the degree of cardiac enfeeblement. In other

words, the high blood-pressure in myocardial disease, is maintained by an augmented tonus of the vasomotor center. Thus the blood-pressure may fall from 240 mm. before, to 180 mm. after inhalation of amyl nitrite in arteriosclerotics with enfeebled hearts. Even this reduction in blood-pressure is not low enough to correspond with the tones of the feeble acting heart, hence one is constrained to conclude that the action of the amyl nitrite does not suffice wholly to eliminate the vasomotor factor.

6. The execution of the foregoing maneuvers in estimating heart vigor is by no means comparable to a correct method of cardiac auscultation, although the latter method does not indicate how much of the cardiac force may be attributed to increased peripheral resistance; cardiac auscultation in conjunction with the sphygmomanometer and the inhalation of amyl nitrite, constitute the ideal methods for eliciting the real condition of things.

7. In estimating blood-pressure, the sphygmomanometer only gauges the force of the left ventricle, and to determine the sufficiency of the right ventricle, auscultation of the pulmonic sounds and a physical examination of the lungs are alone adequate.

I have encountered a number of individuals with very high blood-pressure and who demonstrated no cardiac anomaly, yet the blood-pressure remained the same after as before the inhalation of amyl nitrite. In about half of these individuals, the urine was light in color, of low specific gravity, contained a trace of albumin, and was excreted in increased quantities. Albumin often disappeared when the blood-pressure was spontaneously lowered, to reappear when the pressure rose, hence the albuminuria in such instances could be correctly designated as the albuminuria of high blood-pressure.

Miners' Pulmonary Tuberculosis in the Transvaal.—Mr. R. B. Haldane, the wellknown British author and Liberal M. P., directs attention in a published letter to the ravages committed by miners' pulmonary tuberculosis in the mines of the Witwatersrand. It seems that the quartzite of the gold-bearing beds of the Witwatersrand is very hard, and the mines very dry; consequently, when the rock is drilled and blasting takes place, the atmosphere becomes filled with minute particles of hard rock dust, which are inhaled. The result is a deplorable loss of life, and great economic wastage. Mr. Haldane estimates that the deathrate among the white rock-drill miners of the average age of 35 is over 70 per 1,000. Among English coal miners of this age the mortality is only 6.3 per 1,000; among English ironstone miners, 6; and among English tin miners, 8.1. The figures appear to indicate that among the native rock-drill miners the mortality is less. It is given as 42.03 per 1,000. Mr. Haldane insists that the loss of life is unnecessary. All of it, or nearly all of it, could be obviated by the substitution of wet for dry mining. But this, owing to the scarcity of water, would be a costly operation.

Scheme for Measuring Great Britain's Population.—There is a likelihood that the committee which is at present investigating the alleged decline of the national physique will recommend a scheme for measuring and weighing the population of the United Kingdom. The desirability of adopting such a scheme has been strongly urged upon the committee by doctors and anthropologists. The development of a project of such magnitude will necessarily occupy considerable time, but it is understood that it has so far advanced that a schedule based upon measurements and tests prepared by Dr. Cunningham of the Edinburgh University is now being drawn up by a section of the British Association. A copy of this schedule, it is suggested, should be sent to every householder with a request that he state therein the age, height, weight, chest measurement, and other facts respecting the physical condition of himself and each member of his family. Anthropologists are anxious that the measurements should include those of the skull. They argue that as the population of these islands has become so cosmopolitan an effort should be made to determine the native counties of its constituent members. Skilled anthropologists can tell from the conformation of a man's head not only of what nationality he is, but in the case of an Englishman what county gave him birth. Mr. James Gray of the Anthropologic Institute, who is taking an active part in the present scheme, recently addressed a meeting at the Toynbee Hall. His audience included a large number of foreigners, whose heads he measured with an instrument invented by himself. Mr. Gray then correctly informed 50 of them in what countries they were born. For these and other reasons anthropologists urge that the size and shape of heads should be noted when the other proposed measurements are taken.—[*London Mail*.]

however, a decidedly noticeable dragging of the left leg in walking. The patient was seen once, three months after delivery, and was heard from one year later, and the dragging spoken of was still present.

I do not desire to consider the treatment of these cases of neuritis as such, as this is within the special province of the neurologist, but I feel that a study of the prophylaxis of the condition points out some very important facts which practical obstetricians may well take cognizance of. I refer to the treatment in cases of delayed labor, whether due to contraction of the pelvis or not, for it will be remembered that while cases of neuritis may occur from toxic causes which we cannot govern and after easy labors, by far the greatest number are the result of delayed labor from some of its many causes. The necessity is therefore enforced that pelvic examinations be made before labor in order to determine whether or not there be any factor, such as contraction, which will tend to produce delay and that when labor has once begun that an accurate diagnosis of position be made and forceps applied when indicated. The use of chloroform to diminish spasm of the pelvic muscles and thus decrease their bulk would seem to be also an important agent. As regards the application of forceps, it is well to remember that while their use is advised in proper cases it is presupposed that they are intelligently applied and used, for while we do not feel that the lumbosacral plexus is at all likely to be injured by even a faulty use this does not hold good as regards the lower sacral nerves. It is hardly needful to emphasize the importance of asepsis as the production of a neuritis from pelvic foci of infection is but one of the many evils resulting from its neglect.

As regards the prognosis, it may be said that in all probability in a considerable number of mild cases of peripheral neuritis the patients recover without any diagnosis of the condition having been made, as the period usually spent in bed after delivery would be amply sufficient for this in such cases. In the more severe forms, the prognosis is doubtful or good, according to whether the reactions of degeneration are present or not. In any event, considerable time frequently elapses, even under careful treatment, before a cure results.

The symptomatology of these cases varies, of course, according to the severity of the lesion, and careful inquiry will sometimes be rewarded by the history of the inception of the trouble having occurred in pregnancy. This may be true of the forms of pressure neuritis, as well as of the toxic and septic. In the former the mere friction of the presenting part in the latter part of pregnancy upon the nerves at the pelvic brim is at times sufficient to produce at least their transient irritation. The time of onset may then be in the latter part of pregnancy, during labor, or at any time subsequent for a period of several weeks; the cases due to intrapelvic fetal pressure occur promptly after labor as a rule, and also generally show a considerable amount of pain during the labor, while those due to sepsis occur later according to the special development of the case. As regards the actual symptoms, it will be found that they vary from a transient pain often ascribed to rheumatism, etc., and without any localizing nerve signs to a symptom-complex resembling "Landry's paralysis" or myelitis. The usual type of case is one intermediate between these extremes, presenting some pain, loss of power, perhaps some sensory disturbances as paresthesia and atrophic changes. The nerves involved are in less severe cases the median or ulnar, or if the leg be affected, the sciatic, the gluteal, and especially the external popliteal, the peculiar symptom of the latter being the presence of the so-called foot-drop. In the grave cases threatening life there is a general involvement of all the nerves of the body. The symptomatology of the secondary involvement of the cord and brain, which rarely occurs, does not need to be considered here.

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CLINICAL REPORT OF A CASE OF LITHOGENOUS ICTERUS.

BY

BYRON ROBINSON, B.S., M.D.,

of Chicago.

A diagnosis of hepatic calculus rests chiefly on the historic clinical symptoms. The operative procedure may be of the most simple nature or so difficult as to test the best skill of one who has devoted a lifetime to abdominal surgery. The prognosis is favorable in the majority of cases, yet the experienced are well aware that with lithogenous icterus a mortality as high as 30% may occur. The following case, referred to me by Dr. Wm. Reese, of Dodgeville, Wis., presents many facts of interest:

The patient, a woman of 44, had been afflicted with attacks of hepatic colic for more than 10 years. She had seven living children. In the first years icterus and the attacks were both light; the attacks occurred at intervals of two to five months. During the later years the hepatic colic seizures were more frequent and severe, as well as the icterus. For the past two months the attacks have been quite frequent and the icterus intense and continuous. For seven weeks she has been very ill in bed with a very irregular temperature, 99° to 105°; respirations, 20 to 24; pulse, 95 to 120. The peculiarity about the clinical course was that one or more times during the 24 hours the temperature would suddenly rise from 100° to 105° and rapidly sink to 100° again. Vomiting had been severe and some of the vomitus was bile, according to the report by Dr. Reese and the family. The pain for 10 years was occasionally strong, but for the past eight weeks it has been severe most of the time. The pain radiated toward the right scapula. Constipation with clay-colored stools existed. Appetite was defective. The patient was so ill for six weeks that she did not wish to be turned in bed.

Condition presented four days previous to the operation: The patient was fairly well nourished. The face showed rather grave suffering. There was marked icterus of the scleras and general body, which had been continuous for seven weeks. Examination of the abdomen was negative, except in the right proximal quadrant a distinct local resistance could be felt. Liver was not enlarged. The distal border could not be palpated. There was pain on pressure in the region of the cholecyst. Abdomen was flat, soft, no ascites. Bimanual vaginal examination was negative, except for a slight pelvic peritoneal exudate from the left side. Urine showed albumin, pus, hyaline and granular casts; daily quantity 40 ounces. Bowel evacuations were clay-colored. Temperature 102°, pulse 95, respirations 24. Blood: Hemoglobin 80%. The diagnosis indicated calculus in the common bile duct. The pain accompanied with icterus favored this view. The long course of the disease (10 years) was against carcinoma, as well as the fairly good color and panniculus adiposus. The right-sided pain and tenderness on pressure, and the constipation, indicated adhesions of the duodenum, colon and omentum, due to infectious invasion through the tunica mucosa and tunica muscularis into the peritoneum. I was doubtful as to whether any bile had passed. She was prepared for operation by the careful drainage of every visceral tract for five days.

Operation.—An incision was made from the costal arch along the external border of the rectus abdominis for 5 in. Muscle was slack and friable. After peritonectomy the liver came in view. It was dark, elastic, and atrophic. By reflecting its sharp edge proximalward, a solid mass of adhesions could be observed, consisting of the omentum, duodenum, and the transverse colon. The contracting adhesions had drawn the left half of the stomach in contact with the liver. No cleavage was possible. Separation of the viscera was performed by the knife or tearing. After careful separation and incision of adhesions, I finally came to a solid rod-like cord, 1½ in. in diameter, extending from liver to pancreas, consisting of hepatic artery, portal vein, cholecyst, and bile ducts. In the midst of this solid mass a still more solid mass existed, 2 in. by ¾ in. in dimension. This was the calculus in the bile

duct. No trace of the cholecyst could be found; it was obliterated. With the aid of a finger and a blunt instrument the solid mass was exposed, but the portal vein, hepatic artery, or choledochus could not be recognized. Anatomy teaches that the bile ducts are located on the right, the portal vein lies in the middle, and the hepatic artery is located to the left, but anatomy had ceased to exist in this case; it was replaced by pathologic anatomy. The membrane covering the calculus was incised for an inch, and the calculus extracted from its securely

the subject of hepatic calculus is early diagnosis from symptoms and early removal of the calculus. Surgery does not indicate removal of hepatic calculus before symptoms arise, for in 600 postmortem abdominal inspections, I found hepatic calculus present some 70 times but no symptoms having arisen, neither patient nor physician was aware of the calculus, the pa-

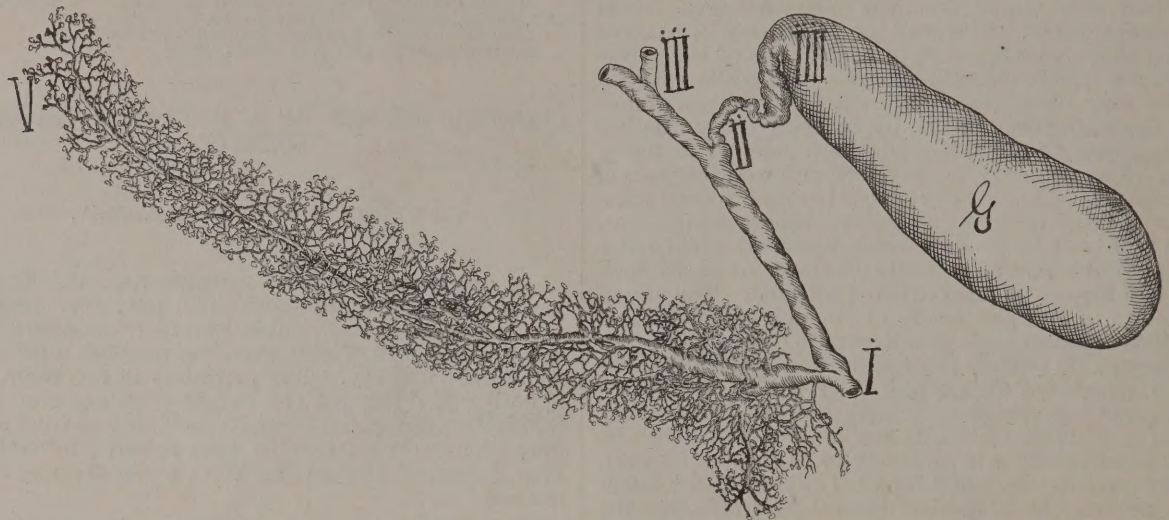


Fig. 1.—A röntgen ray of the ductus pancreaticus (I to V), ductus choledochus (I to II), ductus cysticus (II to IIII), and ductus hepaticus (I to III). Ductus pancreaticus was injected with cellulidin and red mercury sulfate. The biliary channels were injected with red lead and starch, after which the specimen was röntgen rayed and sketched as a model. Dorsal view.

imbedded channel. It measured 2 in. long by $\frac{3}{4}$ in. in diameter, and was uniformly rod-shaped. A considerable quantity of dark, bloody bile followed. The calculus extended in the choledochus, well through the head of the pancreas and dorsal to the duodenum. The choledochus was amply large in diameter for exploration of the finger. The choledochus was drained by thin strips of gauze introduced into its dilated lumen. Also large strips of gauze were introduced on each side of the ductus choledochus to meet in Winslow's foramen. The abdominal wound was closed by silkwormgut sutures. The operation lasted 50 minutes. Pulse was strong, 130, face somewhat pale. The patient continued in good condition until some 12 hours subsequent to the operation when she was seized with great pain; the pulse rapidly increased in frequency until it could not be counted, and soon after could not be felt in the wrist. The temperature rapidly rose to 105° ; respirations, 30; she died some 15 hours after the operation. No autopsy was held, however; I think she died from the distribution of septic emboli. That septic foci existed was proved by the frequent rise and fall of temperature for 7 weeks and the continuous rapid pulse. The operation, though severe, was not of such traumatism as to invite any form of collapse. She was not shocked, as she conversed with me in comfortable condition, pulse 100, two hours after the operation.

Courvoisier's law that in 80% of the cases of obstruction in the common bile duct due to calculus there is contraction of the cholecyst, while in 90% of cases of distention of the cholecyst the obstruction is due to causes other than calculus, was confirmed in this case. No trace of the cholecyst could be recognized. It is doubtful whether any considerable quantity of bile could pass the choledochus obstructed by a calculus 2 in. by $\frac{3}{4}$ in. and the atrophy of the liver added further proof. I am aware that experience teaches that in acute cases with icterus and calculus in the choledochus, operation should not be performed, but our patient was in the best condition of a 7 weeks' attack. Beside I believe that in all benignant cases the patient should have the right of complete operation when possible though it may border on the line of danger, trauma and shock. With the anatomy of the bile and pancreatic ducts before us demonstrating their direct continuity and consequently that the bile and the pancreatic fluid must mix it is evident that the infection of the liver is carried into the pancreas by it direct and vice versa. Continuous hepatic infection sooner or later ends in pancreatic infection. However, I found no fat necrosis present. The greatest advantage to

tients dying from intercurrent diseases. The accidents accompanying operations, chiefly from emboli, furnish the surgeon's life with ample agony. However, useful surgery is built on its faults. Without operation my patient would have died a lingering, septic and painful death. After a painstaking diagnosis and thorough preparation of the patient with conscientious execution of the operation we had hoped vainly for success.

POSTERIOR GASTROENTEROSTOMY, WITH ENTERO-ENTEROSTOMY: A STUDY OF CONDITIONS FOUND AT AUTOPSY.

BY

W. L. WALLACE, M.D.,
of Syracuse, N. Y.

In *American Medicine*, February 20, 1904, p. 312, I described the steps of an operation used in a case of pyloric stenosis.

The relations of parts at the close of this operation are indicated in Fig. 1. The jejunum, about eight or ten inches from the duodenojejunal angle, had been passed through the transverse mesocolon and united by silk stitches with the posterior wall of the stomach and the two arms of the jejunum had been joined together by a Murphy button about three and one-half inches from their communication with the stomach.

The operation was performed December 10, 1903. The man made a good recovery, the Murphy button appearing on the twelfth day. Three days later he left the hospital. From this time he had no gastric distress or vomiting, and was able to eat and digest large quantities of food. In the middle of January, after morning and afternoon temperature had been normal for weeks, he had an attack of pneumonia, involving the base of his left lung—a typical case—with chill and prune-juice expectoration. In the early part of February, he was greatly weakened by pulmonary hemorrhages, and he died February 17, ten weeks after his operation, from anemia following a hemorrhage.

An autopsy was performed February 18 by Dr. H. S. Steensland, director of the pathologic laboratory of Syracuse University Medical College. The left lung contained a cavity at the base posteriorly; otherwise the lungs were large and sound. Heart, liver, spleen, pancreas, and kidneys were normal. The stomach contained a tumor, which involved the pyloric portion; a hard, white mass, one inch in thickness, surrounding and closing, to the size of a probe, the pyloric orifice. No softening

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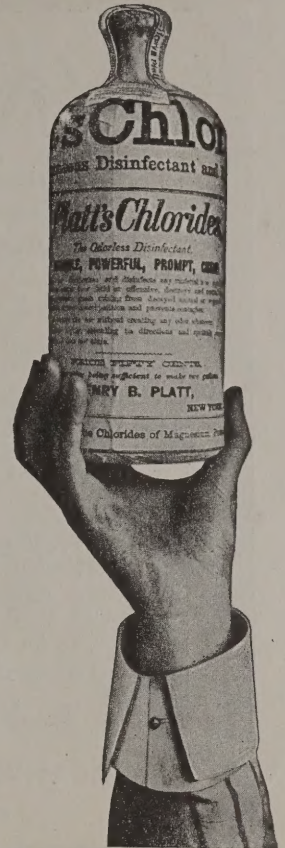
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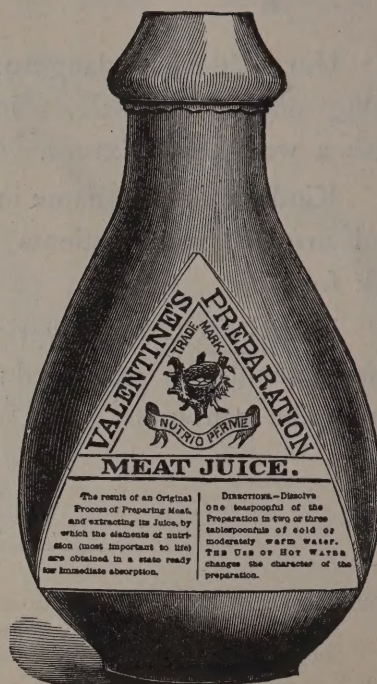
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